

Jura, C., Giurconiu, M., Mirel, I. - Prodigious activity of Prof. Pompiliu Nicolau in Sanitary Engineering.....12

Abstract - The team which elaborate this paper with anniversary character, present concisely, as collaborators, the most representative activities and preoccupations of Professor Engineer Pompiliu Nicolau in Sanitary Engineering, which he realized during his longest and fruitful activity performed in the studies department with hydrotechnical character, in research, in technique and in superior education. Professor Engineer Pompiliu Nicolau studied and get thoroughly into fluid mechanics problems, bringing valuable contributions to the technical realizations and development program of hydrotechnical constructions, hydrotechnical arrangements, navigation, land reclamation and improvements and sanitary engineering.

Keywords: Professor Engineer Pompiliu Nicolau, sanitary engineering domain

Jura, C., Giurconiu, M., Mirel, I., Crețu, Gh. - Water supply and sewerage laboratory. Contributions at science and education activity perfecting.....18

Abstract - In paper are presented the main equipments of specialty laboratory for the study of water sewage and water treatment processes, respective of water distribution and wastewater collection in sewage networks. The arranged research stands contribute essential to didactic activity and scientific research perfecting, also contribute to student scientific research development and PhD thesis elaboration. In paper are presented some of the realization obtained through direct guidance of Prof. Pompiliu Nicolau, together with Prof. Vasile Zbegan in the active period of these distinguished teachers and specialists as well as realizations initiated till 1972 and after finalized in the next periods of time.

Keywords: equipments, special laboratory, water sewage and water treatment processes, wastewater collection

Lazăr, Gh., Constantin, T.A. - Deformation and unit stresses state to an earthen dam with clay core, performance of the dam in unlinear material and geometrical unlinearement zone.....23

Abstract - In paper are presented deformation state and unit stresses at an earthen dam with clay core (Săcele Dam, $H_{max} = 45m$), in the most unfavorable situation, submit to a dynamic action of a calculus earthquake (amplification 1/3 from El-Centro earthquake accelerograma, horizontal component, in time sequence: 0 – 5.45 seconds). In numerical simulation were considerate unlinear geometrical behavior of structure and unlinear behavior of materials from dam's body and underground, the dynamic answer being obtained by direct integration "step by step". There are presented some significant variations of deformations and unit stresses in comparison with time, in some points of efforts maximum amplification from dam's body and material plasticity areas.

Keywords: deformation state, unit stresses, earthen dam with clay core

Fulop, E., Constantin, T.A., Orlescu, C. - General consideration about reopening the navigation on the Bega Channel31

Abstract - The reopening of navigation on Bega Channel was and still a major desideration of people from this part of the country having an uncontestable economic importance, Must be mentioned two aspects: the channel can be reopened at initial parameters or can be totally rearranged and extended. In actual economic situation is considered to be more suitable the first option through which with minimum investments can be reopen this navigable way.

Keywords: reopening, navigation, Bega Channel

Preluschek, E., Constantin, T.A. - A new technology for dam performing using roller compacted-concrete40

Abstract - Roller compacted-concrete (RB) dams, represent a significant progress in dam's construction and design. Roller compacted-concrete was developed in the '80, and its use for new dams as well as for the rehabilitation of the existing ones, can make great progress in future. This paper intends to be information over the advantages which RB brings, as component materials and technology. Also, in paper are mentioned some of the countries in which RB was used with success, which conduct to a reduction of execution periods, costs as well as important economies of manual labor and cement.

Keywords: Roller compacted-concrete, dams, new technology

Ilinca, C., Popovici, A. - Some aspects concerning use of the statistical models in hydraulic structures surveillance45

Abstract - Statistical models are used for processing and interpretation of dates obtained from hydrotechnical constructions surveillance. They permit correlations between causes (actions over constructions) and effects (the construction's answer in deformations, efforts, infiltrations, etc.), as well as the emphasizing distinctive influences of some causes over the answer. On this base can be alerted and prevented abnormal situation of behavior. In paper are described comparative some statistical models applied in dams surveillance. In final are given more examples of their appliance at Gura Râului dam. **Keywords:** Statistical models, hydrotechnical constructions surveillance

Novac, I., Joavină, R., Popa, M., Ciurea, C., Maftai, C., Pascale, D. - Statistical parameters for marine waves from Black Sea.....53

Abstract - Wave's generation process is represented by wind energy transmitted to water surface. Wave energy depends on wind intensity and duration on the surface on which action. During a storm, sea surface is composed by waves of different heights and directions so that sea state cannot be represented in a determinist form. We can consider that the wave is a random phenomenon, governed by a probabilistic law. In sea construction design is necessary to know the sea state for a long period of time (20 – 50 years). It is possible to isolate an average sea state and to be obtained a global state model, from statistical distribution of short time parameters. This paper proposes to check the values accuracy obtained with different spectral models which correspond to Black Sea case.

Keywords: Statistical parameters, marine waves, Black Sea, wind energy

Chițac, V. - Vertical wave loads acting on the ship and minimalization of vertical ship motions59

Abstract - By integrating this pressure over the hull surface we find the Froude-Kriloff force. By the nature of Froude-Kriloff force its amplitude has to be independent of the ship speed. However, the amplitude of the diffraction force will in general be speed-dependent. For more-details as to how the diffraction force can be calculated within a strip theory approximation one may; for instance consult Salvesen and all (1970). Their approach is based using Green's second identity. The formulas use the velocity potentials due to forced motion of the ship. The advantage is that it is generally more correct to use a strip theory approximation and neglect hydrodynamic interaction between the cross-sections for the forced-motion potentials than for the diffraction potentials.

Keywords: Vertical wave, Froude-Kriloff force, vertical ship motions

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Abstract - Metallic constructions of retention are complex structures which, through their structure and functionality, constitute a mobile dam which cooperate with concrete infrastructure, together forming the retention front – dam, lock – on river courses. The paper presents some types of retention metallic constructions, designed and realized at HIDROTIM S.A. by engineer's graduate of Hydrotechnical Engineering Faculty from Timișoara. The structures presented constitutes the most usual types, being mentioned that other numerous solutions were conceived and executed in order to equip hydroenergetical and thermoenergetical arrangements on national plan, in the same time being contracted, at level of execution design, works with foreign partners.

Keywords: retention metallic constructions, realizations

Vlaia, M. - Regarding the conception of retention metallic constructions in future. Perspectives71

Abstract: The paper presents some modern types of retention metallic structures, of which conception follows the actual European tendencies in domain, with references at conception and execution. The solutions presented, as result of realized researches over a large number of variants, were, in part, executed in partnership with extern beneficiaries. From the obtained advantages, are mentioned the following: structure reduced weight, diminished volume of work labor in comparison with classical solutions, reduce gauge and low price of action installation, the elimination of some equipments utilized in classical system of lock functioning. As an alternative for tightness, is presented a pneumatic system of tightness for hydroenergetic arrangements with unpredictable settles. The metallic structures presented represent future equipment solutions taking into consideration the practice results of effectuated studies.

Keywords: conception, retention metallic constructions, equipment solutions

Harabagiu, C., Macridin, Z. - Analyze of the July 1999 flood on Cerna River77

Abstract - The rainfall in period 11 – 12 July, in hydrographic basin of Cerna River, on torrents and interbasinal surfaces, generated a catastrophic flood, comparable with flood produced in 1940, when doesn't exists hydrotechnical works Valea lui Iovan and Herculane. In paper are presented: the launching factors of flood, the way in which were reconstitute the floods at hydrometrical station situated upstream of Valea lui Iovan reservoir, stations which were destroyed by flood wave, the translation of flood wave on Cerna River and the statistical analyze of reconstitute maximum flows.

Keywords: flood, Cerna River, hydrographic basin, statistical analyze

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Abstract - The paper presents a synthesis of drainage studies accomplished in Timiș, Arad, Bihor and Maramureș counties, between 1998 and 1999 about most representative excess moisture soils. To establish drainage solutions, were necessary lab studies and researches for each zone in sequence, using different filter materials and drainage pipes. Each drainage solution is unique because were used different types of soil, filter materials and drainage pipes.

Keywords: drainage studies, drainage solutions, excess moisture soils

Roșu, L., Șerban, L., Ciurea, C., Pascale, D.A., Dumitru, A., Popa, M. - The dimensioning, by means of analytical calculus methods, of automated irrigation canals equipped with constant upstream level controllers ...

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Abstract - The reconsideration of automatic systems for irrigation canals, in the conditions of imposing some restrictions regarding water and energy consumption, will allow the passing to gates command and action according to delivered flow variation, the adequate delivering principle being “after program”. In this situation, the automatic adjustment can be realized with constant upstream level controllers. In paper is presented an analytic computation method for dimension and verification in functioning of irrigation canals equipped with this type of controller.

Keywords: constant upstream level controllers, dimensioning, automated irrigation canals

Doandea, V., Eleș, G. - Verifying possibility of the horizontal measured angles in the open traverse having only the starting azimuth and close sight96

Abstract - Knowing that the committed error upon angles influence in a much bigger measure upon station position points in a planimetric traverse, in comparison with distances measuring error, the proposed procedure is limiting the position error bring it under the limit of admitted tolerance in the case of an open planimetric traverse cu starting orientation and close sight.

Keywords: horizontal measured angles, open traverse, starting azimuth and close sight

Arsenie, D.I., Florea, M., Omer, I. - Considerations about the accuracy computation regarding ram strike101

Abstract - In the paper are determined the similitude parameters for ram strike phenomenon which appears in upsetting pipes of pumping stations equipped with centrifugal pumps, when an energetic damage is produced. We can conclusion that exist three similitude parameters noticed as M – having the structure of a Mach number, N – taking in consideration the relative influence of pressure losses and K – expressing the relative importance of inertia moment of electric engines and pumps rotation parts. Keeping two of these parameters, is determined, on an example, the influence of which errors in similitude parameters determination have upon computation results.

Keywords: ram strike, hydraulic shock, similitude parameters, pumping stations

Moisuc, I., Arsenie, D.I., Roșu, L. - On an analytical solution to the calculation of the unsteady water infiltration into the aquiferous layers due to the periodical variation of the reservoir level107

Abstract - From the often situation met in practice (sudden variation or periodic variation of water lever in an aquifer closer reservoir), it is analyzed the case of unsteady water infiltration in aquifer because of periodical variation of its level in reservoir and it's given a calculus analytical solution. The general solution obtained is transpose, through numeric calculus, in the graphic of function $h = f(t)$ of depression curve of water from aquifer.

Keywords: unsteady water infiltration, aquiferous layers, reservoir level

Constantinescu, Gh. - The influence of free air upon celerity in under pressure hydraulic pipes113

Abstract - In paper is presented the analysis influence of elastic air effect present in under pressure hydraulic systems over propagation speed of pressure waves, of celerity.

Are presented partially results of analytical and experimental research regarding the influence of present free air gas phase or which can be introduced in a controlled way in under pressure hydraulic systems over celerity, with effect over the deploy mode of unsteady movement from under pressure hydraulic systems and implicit, over the control of hydrodynamic solicitations produced by hydraulic shocks.

Keywords: free air, celerity, under pressure hydraulic pipes

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Keywords: aquifer with cubic form, movement, ASM 6.0

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Keywords: numerical calculation, water infiltration, dams, finite differences method

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Keywords: Modern tendencies, technological channels, water plants

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Keywords: evacuation, separation, washing, sewage treatment stations, mixture

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Keywords: exploitation characteristics, electropumps, variable rotation speed

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Keywords: water supply, zonal and micro zonal system

Bârsan, E., Ignat, C. - The analysis of sedimentation tanks taking into account the settling velocity distribution160

Abstract: For the computation of suspensions retaining in sedimentation tanks it is necessary to be known the settling velocity of particles w . Currently, for the settling velocity are fixed, basing on sedimentation diagrams, the most smallest particle as dimension which follows to be retained and, accordingly the settling velocity which is taking into account. Much close to reality is the analysis of sedimentation process taking in consideration the characteristics of particles in suspension, given by σ distribution curve of settling velocity. It is established the settling efficiency and the turbulence influence and water flow speed over settling process starting with characteristics curves of settling velocity distribution.

Keywords: sedimentation tanks, settling velocity distribution

Mateescu, T., Gălăţanu, C.D. - Self acting-automatic pressure control valves in water distribution systems168

Abstract - Leakage losses represent a major problem for any water distribution network. The functioning at reduced pressure parameters, but with the flow assurance at connections in proper conditions, constitutes an objective for any modernization design of water network distribution. A solution through which can be controlled the pressure in different points or areas stays in utilizing self acting-automatic pressure control valves. The paper presents the most important types of these pressure control valves, their functioning being simulated in MATLAB in dynamic regime for different functioning scenarios. Are presented upstream, downstream pressure control valves but also upstream-downstream, less discussed. The study of these pressure control valves allowed a detailed analysis of all integration implications of these in system.

Keywords: self acting-automatic, pressure control valves, water distribution systems

Bârsan, E., Ignat, C. - An analysis method for water distribution systems.....174

Abstract - Classical ring-shaped analysis of network distribution involves two main stages resolved separately: a – the choose of an initial distribution on sections which must satisfy the continuity condition of flows at knots and b – the correction of these flows till the continuity condition of energy on independent loops is satisfied. Through convenient transformations done over the incidence matrices knot – section are established automatic, without user interventions, through a unitary method, an initial solution, σ loops structure which cover the network and the final flows on network distribution sections. Other hydraulic parameters of distribution network (speed, piezometric quotations, available pressures, etc.) are obtained by additionally procedures.

Keywords: water distribution systems, classical ring-shaped analysis, network

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Abstract - The paper presents results of metrological verification realized for a flowmeter, utilizing a stand completely automatic. It is argue the utilization necessity of complete automatic checking stands because of the large number of flowmeters in function and which will serve as base of an informatics management system, indispensable for a modern exploitation of water distribution network. It is presented the stand principle of realization and function, with the possibility to investigate the entire area of flows. The results argue that flowmeter testing in an insufficient number of points from characteristic can metrological validate device totally improper.

Keywords: automatical stand, flowmeter calibration, metrological verification

Lăzărescu, M. - Experimental research of a material behavior from a settling pond at its emplacement near a watercourse186

Abstract - Settling ponds from mining industry are constructions of a type more special than hydrotechnical constructions for water retention. These are modifying their dimensions during the material settling behind outline dams. In the case of a break outline dam appear movements of solid material different in comparison with water wave in the case of a break barrage. The experiments done on physical model at low scale at the National Institute of Research-Development for Environment Protection emphasize the transport way of material settled in a settling pond. The material utilized at experiments was bringing from settling pond beach Valea Şesii from Mining Exploitation of Copper Roşia Poieni.

Keywords: material behavior, settling pond, mining industry

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Abstract - In paper is presented a study of wastewaters from slaughter houses, especially regarding the containing in proteins, the possibility to separate proteins from these waters by salting out method, their purification and characterization by gel-chromatography as well as the using of recuperated proteins as a surplus for hen's food. The experimented procedure can be constituted in the base of some water and soil protection arrangements, connected and with the recover of some useful materials – the proteins.

Keywords: protein separation, wastewater, fodder admixture

- Popescu, D. - Biogas – how to produce and make it useful197
Abstract - Actual energetic crisis and excessive environment pollution make us to give more attention to unconventional energy sources. One of these sources is represented by sludge from wastewater treatment stations. Through anaerobic fermentation of this sludge, we can obtain important quantities of biogas which in conditions of maximum capitalization can conduct to an independent functioning of station from energetic point of view. After the anaerobic fermentation is obtained a stabilized sludge which can be capitalized in agriculture or as inert material on localities waste deposits. In this paper is emphasized the way of production and capitalization the biogas from Arad wastewater treatment station.
Keywords: biogas, sludge, wastewater treatment stations, anaerobic fermentation
- Beilicci,E., Beilicci, R. - Model for calculation erosion losses from large watersheds 201
Abstract - This paper presents a model for calculation the soil losses from large watersheds, cu agricultural and forestry predominant users. Unfortunately, the actual stage of theoretical knowledge and mathematic modelation of erosion processes is relative low. The multitudinous of factors which are reciprocal influencing, and the extraordinary diversity of concrete conditions from nature in which appear these processes made almost impossible a general theoretical substantiation, as a base for adequate calculation instruments, useful in purpose of analysis. The model presented is basing on watersheds splitting on smaller surfaces (relative homogeneous), for each of these units are determined relevant parameters (average slope, vegetation cover coefficient) these parameters being utilized in soil losses calculation relations.
Keywords: erosion losses, soil, large watersheds
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Keywords: Soil erosion losses, upland areas, runoff
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Keywords: ecology and hydrology, integration, aquatic ecosystems level
- Roșu, C., Jebelean, S., Nagy, C. - The revival of the Bega Canal.....219
Abstract - This paper present the results of a study through which were searched solutions for the improvement and protection of Bega River ecosystem. Putting in practice such a project means not only a healthy and pleasant ambient for Timișoara inhabitants but also the attraction of some investments interested to arrange spaces for recreation and so to contribute to the investments fund. The canal integration in general landscape can constitute a first stage of a larger project, which has in view the revitalization of Bega Canal for navigation. Basing on existing dates, on measurements and previous projects, in study were analyzed two scenarios “laissez faire” and “environment”.
Keywords: revival, Bega Canal, ecosystem, improvement and protection
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Keywords: waste deposits, wastes processing methods, actual situation
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Abstract - The proposed paper is the result of a environment impact study, executed by Oradea University, Environment Protection Faculty, for S.C. UAMT S.A. Oradea, having as activities the producing of accessories and subassemblies for roadway transport, railway transport, seaway transport and good's for wide consume. Analyzing the society structure were emphasize the main pollution sources with zinc these being: the foundry, wastes storage, galvanization section. In order to quantify the zinc quantity from soil were taken samples from 4 points, on two depths, situated as it follows: one in the exterior of society, in north-west side,

on the predominant wind direction and other three in interior, close to the objectives with problems. Soils samples analyze emphasize higher zinc quantities for the points inside the society area in comparison with the point outside society area, considered as witness point. The biggest contain of zinc was recorded close to wastes storage, value situated between value of base and alert value.

Keywords: *environment impact study, pollution of soil with zinc*

Simon, I., Borlea, A. - Mechanical stage of before cleaning of waste waters from fuel oil housekeeping of thermo power plant239

Abstract - *This paper proposes to apply some settling and separation solutions through specific weight differences simultaneous with the attenuation and retention of water volumes from fuel oil house-keepings and in special from foul oil unload grades afferent to thermo-power plants and simultaneous with using the devices with band strip disc or drum for the fuel oil recuperation, separated at water surfaces and of pumping machines for recuperated fuel oil evacuation in reservoirs and of water in next stage of separation.*

Keywords: *mechanical stage, waste waters, fuel oil housekeeping, thermo power plant*

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Abstract - *This paper create a reflection way over the problematic of limiting the pollution phenomenon on Danube, generated by ship traffic increasing as a consequence of river countries economies development and diversification. The first part of text presents the international legislative evolution, marine and river in aquatic environment pollution domain with fuels, structures created in this direction as well as appreciations over the evolution level in Danube river navigation domain. Second part comments in comparative way pollution sources with major potential in river and marine domain. The third part of paper is focusing over the shipping management connected with aquatic environment pollution limitation.*

Keywords: *pollution phenomena, Danube waterway, river traffic development*

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Abstract - *ACROPOLE is a program for the management and analysis of rainfall – flow series, analyze which represents essential information for any type of mathematic modelation in hydrology. In this paper we present the architectural part of ACROPOLE program and the reasons which conduct us to the realization of this program.*

Keywords: *ACROPOLE, management, analysis, rainfall – flow series*

Șerban, L., Hâncu, D.C. - Technological principles of the production of red-sludge (RS) colored plaster products259

Abstract - *Special plaster-based are used in obtaining different products for separating walls, architectural elements, plates and other elements thermo and phonic isolator. These utilizations are determined by mechanical and physical characteristics of strengthen plaster-based as well as by the relative simple technologies necessary to obtain such construction elements.*

Keywords: *red-sludge, colored plaster products, special plaster-based*

Georgescu, I., Popescu, I. - Solutions for repair the damages of the old buildings with a resistance structure made by carrying masonry and wooden board264

Abstract - *In this paper is presented the strengthen solution of damaged building by earthquakes having the structure made by carrying masonry and wooden board.*

Keywords: *damages, old buildings, resistance structure, carrying masonry, wooden board*

Georgescu, I., Buțu, A.- The determination of the pulsation and proper forms of vibrations for an oscillating system with two dynamic degrees of freedom268

Abstract - *This paper contains the determination of the pulsations for an oscillating system with two degrees of freedom using the inertia method (the flexibility matrix).*

Keywords: *pulsation, vibrations, oscillating system, two dynamic degrees of freedom*

Șumălan, I., Guțiu, S., - The pollution of the surface waters on Timiș-Bega catchment area and their effects on water quality271

Abstract - *The development of urban and rural areas from Banat area in the last years had among other consequences the rising of water necessary for industry and population. Necessary water for Timișoara is assured from underground and surface sources, an important role in this sense having Bega Canal. Because of its geographical development, hydrographic basin Timiș – Bega, involving a consistent hydrographic network, make possible the exposure of surface waters to pollution phenomenon and the functioning of water supply arrangements under a risk. The most representative pollution sources in the area are represented by*

chemical and metallurgical industrial units, mining exploitation and zootechnical farms. The paper takes in consideration the possibility of Bega River pollution from different existent pollution sources and the polluters transport in different variants of simulation. The simulation variants are different through the pollution source emplacement, pollution regime and were realized through numerical modelation. The obtained results can constitute bases for realizing preventing scenarios of surface waters pollution process and for applying concrete measures in areas with existent water supply arrangements or intended to be realized.

Keywords: pollution of the surface waters, Timiș-Bega catchment area, water quality

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Abstract - This paper presents, for the chernozems from Banat Low Plain – Jimbolia – Sânnicolau area – soils with high natural fertility but which in some drought years request irrigations, possibilities of estimations for some hydrophysical parameters (with coefficient, field capacity for water, hydraulic conductivity), difficult to be determined “in situ“, from physical indexes usual determined as texture, clay content, apparent density. Are presented the main characteristics of some typical chernozems, glazed and salinized– alkalized, “in situ” determinations of hydraulic conductivity using “auger hole” method and is estimated conductivity value from physical characteristics using a series of own equations. For the typical chernozem were established correlations only in Ap horizon and in salinized– alkalized chernozem resulted correlations with a acceptable trust level between K and physical indexes in all studied horizons.

Keywords: relationship, soil physical and hydraulic parameters, chernozems